

## CURRICULUM VITAE

YUAN LIU

### CONTACT INFORMATION

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### EDUCATION

2004	Ph.D. (Biochemistry)	University of Rochester School of Medicine and Dentistry, NY, USA
1998	M.S. (Toxicology)	Rutgers University, NJ, USA
1991	M.M. (Master of Medicine)	Tongji Medical University, School of Public Health, Wuhan, Hubei, P. R. China
1988	M.D. (Bachelor of Medicine)	Tongji Medical University, School of Public Health, Wuhan, Hubei, P. R. China

### RESEARCH AND PROFESSIONAL EXPERIENCE

June 2016-present	Associate Professor, Department of Chemistry and Biochemistry, Florida International University, Miami, FL, USA
Aug. 2017-Aug 2022	Director, Biochemistry Ph.D. Program, Florida International University, Miami, FL, USA
Aug. 2010-June 2016	Assistant Professor, Department of Chemistry and Biochemistry, Florida International University, Miami, FL, USA
Jan. 2006-Aug. 2010	Research Fellow, Laboratory of Structural Biology, Institute of Environmental National Health Sciences (NIEHS)/National Institutes of Health, NC, USA (Mentor: Dr. Samuel H. Wilson)
Oct. 2003-Dec. 2005	Postdoctoral Fellow, Laboratory of Structural Biology, National Institute of Environmental Health Sciences (NIEHS)/National Institutes of Health (NIH), NC, USA (Mentor: Dr. Samuel H. Wilson)
Sept. 1998-Oct. 2003	Graduate Research Assistant, Department of Biochemistry and Biophysics, School of Medicine and Dentistry, University of Rochester, NY, USA (Advisor: Dr. Robert A. Bambara)
Sept. 1995-May 1998	Graduate Teaching Assistant, Department of Pharmacology and Toxicology, Rutgers University, NJ, USA
Sept. 1991-May 1995	Assistant Investigator, Department of Environmental Health Impact, Institute of Environmental Health Monitoring, Chinese Academy of Preventive Medicine (Chinese Center for Disease Control and Prevention), Beijing, P. R. China
Sept 1988-May 1991	Graduate Student, Department of Environmental Health, School of Public Health, Tongji Medical University, Wuhan, Hubei, P. R. China
Sept.1987-May 1988	Undergraduate research internship, Institute of Environmental Medicine, School of Public Health, Tongji Medical University, Wuhan, Hubei, P. R. China

## **GRANT FUNDING**

### **Grant funded**

R03 ES035200 (PI: Yuan Liu)

Role: PI

03/07/23-02/28/26 (NCE)

N<sup>6</sup>-methyladenosine (m<sup>6</sup>A) Interplays with RNA and DNA Damage to Regulate DNA Repair

R03ES035200-01S1 (PI: Yuan Liu)

Role: PI

8/24/23-02/28/26 (NCE)

N<sup>6</sup>-methyladenosine (m<sup>6</sup>A) Interplays with RNA and DNA Damage to Regulate DNA Repair

R03 NS132097 (PI: Yuan Liu)

Role: PI

03/01/23-02/28/26 (NCE)

A CRISPR/dCas9-Targeted Histone Demethylation Induces GAA Repeat Contraction

R03NS132097-02S1 (PI: Yuan Liu)

Role: PI

04/01/24-02/28/26 (NCE)

Frataxin Gene-Targeted GAA Repeat Contraction Through A Vault Bionanoparticle-Mediated CRISPR/dCas9 System In Friedreich's Ataxia

## **PATENT**

2017 High throughput measurement of DNA base lesion repair capacity, US 9809843 B1 (granted on November 7, 2017)

2022 Treatments of prostate cancer, US 11304969 B2 (granted on April 19, 2022)

2023 Antitoxins to Brevetoxin, US 11779551 B1 (granted on October 10, 2023)

2023 Treatments of prostate cancer, US 11,839,621 B2 (granted on December 12, 2023)

## **AWARDS AND HONORS**

March 2024	2024 University Graduate School Excellence Award for Mentorship of Graduate Students, Florida International University, Miami, FL
February 2023	2023 College of Arts, Sciences and Education (CASE) Award for Service, Florida International University, Miami, FL
October 2020	2020 College of Arts, Sciences and Education (CASE) Award for Service, Florida International University, Miami, FL
September 2018	2018 College of Arts, Sciences and Education (CASE) Award for Service, Florida International University, Miami, FL, USA
October 2016	2016 College of Arts, Sciences and Education (CASE) Award for Research, Florida International University, Miami, FL, USA
March 2014	2014 Top Scholar of Florida International University, Miami, FL, USA
July 1998-Oct. 2003	Scholarship for graduate student, University of Rochester, NY USA
Sept.1995-May1998	Scholarship for graduate student, Rutgers University, NJ, USA
May 1995	Outstanding Achievement Award for Young Investigator, Chinese

May 1994	Academy of Preventive Medicine (Chinese Center for Disease Control and Prevention), Beijing, P.R. China Third Grade Award of Science and Technology Progress, National Committee of Patriotic Health Campaign and Ministry of Health, Beijing, P. R. China
Sept.1983-May1988	Award for Study Excellency, Tongji Medical University, Wuhan, Hubei, P. R. China

## **MEMBERSHIP**

2003-present	Member, American Association for the Advancement of Science (AAAS)
2013-present	Member, Environmental Mutagenesis and Genomics Society (EMGS)
2012-2021	Member, American Association for Cancer Research (AACR)
2020-2021	Member Society of Biochemistry and Molecular Biology (ASBMB)

## **PROFESSIONAL SERVICE**

- 2009, Lead Judge, NIEHS Summers of Discovery 2009 Poster Session, July, 2009
- 2012, NIH Study section MESH (Biobehavioral Mechanisms of Emotion, Stress and Health Study Section) February 16-17, 2012
- 2013, Ad hoc grant reviewer for Medical Research Council (MRC), UK, May, 2013
- 2014, Judge, EMGS 45<sup>th</sup> Annual Meeting Poster Session, September 13-17, 2014, Orlando, FL
- 2014, Panelist, EMGS 45<sup>th</sup> Annual Meeting Students and New Investigators Luncheon, September 14, 2014, Orlando, FL
- 2014, Panelist, Chemistry Graduate School Symposium, Florida International University, October 2, 2014,
- 2015, Judge, 17<sup>th</sup> Annual Biological and Comparative Immunology Symposium, poster session, March 26-27, 2015,
- 2015, Judge, FIU's annual Scholarly Forum during Graduate Student Appreciation Week (GSAW), Florida International University, Miami, FL, April 6-10, 2015
- 2015, Judge, EMGS 46<sup>th</sup> Annual Meeting Poster Session, September 26-30, 2015, New Orleans, LA
- 2015, Co-chair, Symposium of New Frontiers in Control of Genome Stability, EMGS 46<sup>th</sup> Annual Meeting, September 26-30, 2015, New Orleans, LA
- 2015, Ad hoc grant reviewer for Worldwide Cancer Research, UK, April, 2015
- 2016, Ad hoc grant reviewer for Medical Research Council (MRC), UK, May 20, 2016
- 2016, Judge, EMGS 47<sup>th</sup> Annual Meeting Poster Session, September 17-24, 2016, Kansas City, MO
- 2017, Judge, EMGS 48<sup>th</sup> Annual Meeting Poster Session, September 9-13, 2017, Raleigh, NC
- 2017, NIEHS/NIH K Award Study Section [2018/01 ZES1 LAT-S (K8)], November 2, 2017, USA
- 2018, Scientific Advisory Panel and Judge, 1<sup>st</sup> Southern Genome Maintenance Conferences, October 20-21, Mobile, South Alabama
- 2018, NIEHS/NIH K99/R00 Pathway to Independent Award Study Section [2018/05 ZES1 LAT-D (K1)], March 1, 2018, USA
- 2018, NIEHS/NIH K99/R00 Pathway to Independent Award Study Section [2019/01 ZES1 JAB-D (K9)1], November 6, 2018, USA
- 2019, NIEHS/NIH K99/R00 Pathway to Independent Award Study Section [2020/01 ZES1 JAB-D (K9)1], October 8, 2019, USA
- 2020, NIEHS/NIH K99/R00 Pathway to Independent Award Study Section [2020/05 ZES1 JAB-D (K9)1], March 3, 2020, USA
- NSF Ad hoc reviewer, April, 2021
- DOD FY21 Ovarian Cancer Research Program (OCRP) Pilot Award (Pilot A) September 8-9, 2021.

23. Associate Editor, Mutation Research-Fundamental and Molecular Mechanisms of Mutagenesis, 2022-present
24. Member, Outstanding New Environmental Scientist (ONES) Award (R01 Clinical Trial Optional), ZES1 LWJ-S (R1)(July 2022)
25. Member, Revolutionizing, Innovative, Visionary Environmental Health Research (RIVER) 2023/01 ZES1 LWJ-S (RI) 1 (November 2022)

## **JOURNAL REVIEWERS**

2020-present Reviewer board of the journal Cancers

Ad hoc reviewer for following journals

ACS Omega  
Biochemistry  
Biofactors  
Biological Trace Element Research  
BMC Medical Genetics  
Brain Sciences  
Cancers  
Cancer Research  
Cell Research  
Chemical Research in Toxicology  
Critical Reviews in Biochemistry and Molecular Biology  
DNA Repair  
eBioMedicine  
Electrophoresis  
Environmental Technology and Sciences  
Frontiers in Biosciences  
Genes (Basel)  
Human Genetics  
International Journal of Molecular Sciences  
International Journal of Oncology, Biology and Physics  
Journal of Biological Chemistry  
Journal of Enzyme Inhibition and Medicinal Chemistry  
Molecular Carcinogenesis  
Molecular Therapy: Nucleic Acids  
Mutation Research  
Nature Communication  
Nucleic Acids Research  
Oncotarget  
PLOS One  
PLOS Genetics  
PNAS  
RNA Biology  
Scientific Reports

## **PUBLICATIONS**

\*\* corresponding author

\* co-first author

1. Taher E, **Liu Y**, Hondal RJ, Rein KS (2025) Targeting Florida red tide: Curcumin inhibits *Karenia brevis* thioredoxin reductase. *Plant Physiol Biochem.* 230: 110905
2. Qu F, Fuente J, Chapagain P, **Liu Y\*\*** (2025) Unscheduled m6A Deposition in RNA via m6ATP Incorporation by DNA Polymerases. *Int J Mol Sci* 26 (19): 9263.
3. Qu F and **Liu Y\*\*** (2025) The crosstalk of m<sup>6</sup>A-modified RNA with DNA damage repair. *Trends Biochem Sci* 50 (9): 822-833.
4. Howlader HA, Fernandez R, Tsegay PS, **Liu Y**, Wnuk SF (2025) Synthesis of Adenine Nucleosides with a Reactive ( $\beta$ -Iodovinyl)sulfone or ( $\beta$ -Keto)sulfone Group at the C2 Position and Their Polymerase-Catalyzed Incorporation into DNA. **Molecules** 30: 1358.
5. Olatunji M and **Liu Y\*\*** (2025) RNA damage and its implications in genome stability. *DNA Repair* 147: 103821.
6. Santiago MJ, Chinnapaiyan S, Panda K, Rahman MS, Ghorai S, Rahman I, Black SM, **Liu Y**, and Unwalla HJ (2024) Altered host microRNAomics in HIV infections: Therapeutic potentials and limitations. **Int J Mol Sci** 25: 8809.
7. Kompella P, Wang G, Durrett R, Lai Y, Marin C, **Liu Y**, Habib S, DiGiovanni J, and Vasquez KM (2024) Obesity increases genomic instability at DNA repeat-mediated endogenous mutation hotspots, **Nature Commun** 15:6213.
8. Lai Y, Diaz N, Armbrister R, Agoulnik I, and **Liu Y\*\*** (2024) DNA base damage repair crosstalks with chromatin structures to contract expanded GAA repeats in Friedreich's ataxia. **Biomolecules** 14 (1):809.
9. Jobson J, Tsegay PS, Beltran MT, Taher EA, Rein SR, Liu Y, Rein KS (2023) Brevetoxin induces a shift in the redox state of the proteome and unfolded protein response in human lymphoblast cells that can be alleviated with the acrolein scavenger MESNA. **Environ Toxicol Pharmacol** 100:104137
10. Tsegay PS, Hernandez D, Qu F, Olatunji M, Mamun Y, Chapagain P and **Liu Y\*\*** (2023) RNA-guided DNA base damage repair via DNA polymerase-mediated nick translation. **Nucleic Acids Res** 51(1):166-181.
11. Laverde EE, Polyzos AA, Tsegay P, Shaver M, Hutcheson JD, Balakrishnan L, Cynthia T McMurray CT and **Liu Y\*\*** (2022) Flap endonuclease 1 endonucleolytically processes RNA to resolve R-loops through DNA base excision repair. **Genes (Basel)** 14 (1):98.
12. Howlader H, Suzol SH, Blanco K, Martin-Rafa L, Laverde EE, **Liu Y**, Wnuk SF (2022). Purine Nucleosides with a Reactive ( $\beta$ -Iodovinyl)sulfone or a ( $\beta$ -Keto)sulfone Group at the C8 Position and Their Polymerase-Catalyzed Incorporation into DNA. **Asian J Org Chem** 11: e202100764.
13. Tsegay PS, Hernandez D, Brache C, Chatgililoglu C, Krokidis MG, Chapagain P, **Liu Y\*\*** (2022). Incorporation of 5',8-cyclo-2'deoxyadenosines by DNA repair polymerases via base excision repair. **DNA Repair (Amst)** 109:103258.
14. Qu, F, Tsegay, PS, **Liu, Y\*\*** (2021) N<sup>6</sup>-Methyladenosine, DNA Repair, and Genome Stability. **Front Mol Biosci** 8:645823
15. Rubfiaro A S, Tsegay P S, Lai Y, Cabello E, Shaver M, Hutcheson J, **Liu Y\*\***, He J (2021). Scanning Ion Conductance Microscopy Study Reveals the Disruption of the Integrity of the Human Cell Membrane Structure by Oxidative DNA Damage. **ACS Appl Bio Mater** 4, 2, 1632–1639
16. Lai Y, Beaver JM, Laverde E, **Liu Y\*\*** (2020). Trinucleotide repeat instability via DNA base excision repair. **DNA Repair** 93: 102912.
17. Laverde EE, Lai Y, Leng F, Balakrishnan L, Freudenreich CH, Liu Y\*\* (2020). R-loops promote trinucleotide repeat deletion through DNA base excision repair enzymatic activities. **J Biol Chem**, 295 (40): 13902-13913.
18. Guo J, Rubfiaro AS, Lai Y, Moscoso J, Chen F, **Liu Y**, Wang X, and He J (2020). The Dynamic Single Cell Intracellular pH Sensing by a SERS-Active Nanopipette. **Analyst** 145, 4852-4859
19. Zhang M, Lai Y, Vasquez JL, James DI, Smith KM, Waddell ID, Ogilvie DJ, **Liu Y**, Agoulnik IU (2020) Androgen Receptor and Poly(ADP-ribose) Glycohydrolase Inhibition Increases Efficiency of Androgen.

- Sci Rep.** 10(1):3836.
20. Jiang Z, Lai Y, Beaver JM, Tsegay PS, Zhao ML, Horton JK, Zamora M, Rein HL, Miralles F, Shaver M, Hutcheson HD, Agoulnik I, Wilson SH and **Liu Y\*\*** (2020) Oxidative DNA Damage Modulates DNA Methylation Pattern in Human Breast Cancer 1 (BRCA1) Gene via the Crosstalk between DNA Polymerase  $\beta$  and a de novo DNA Methyltransferase. **Cells** 9, 225.
  21. Zhao T, Sun D, Zhao M, Lai Y, **Liu Y**, Zhang, Z (2020) N6-methyladenosine Mediates Arsenite-Induced Human Keratinocyte Transformation by Suppressing p53 Activation. **Environ Pollution** 259 (2020) 113908.
  22. Vasquez JL, Lai Y, Annamalai T, Jiang Z, Zhang M, Lei R, Zhang Z, **Liu Y\*\***, Tse-Dinh YC\*\*, Agoulnik IU\*\* (2020) Inhibition of Base Excision Repair by Natamycin Suppresses Prostate Cancer Cell Proliferation. **Biochimie.** 168:241-250.
  23. Tsegay PS, Lai Y, **Liu Y\*\*** (2019) Replication Stress and Consequential Instability of the Genome and Epigenome. **Molecules** (Basel), 24:3870
  24. Wang W, Rodriguez-Silva M, Acanda de la Rocha AM, Wolf AL, Lai Y, **Liu Y**, Reinhold WC, Pommier Y, Chambers JW, Tse-Dinh YC \*\* (2019) Tyrosyl-DNA Phosphodiesterase 1 and Topoisomerase I Activities as Predictive Indicators for Glioblastoma Susceptibility to Genotoxic Agents. **Cancers** (Basel), 11(10)1416.
  25. Lai Y, Lei R, Ren Y, **Liu Y\*\***. (2019). Methods to Study Trinucleotide Repeat Instability Induced by DNA damage and Repair. **Methods Mol Biol**, 1999:87-101.
  26. Chatgililoglu C, Ferreri C, Geacintov NE, Krokidis MG, **Liu Y**, Masi A, Shafirovich V, Terzidis, MA, and Tsegay PS (2019). 5',8-Cyclopurine Lesions in DNA Damage: Chemical, Analytical, Biological, and Diagnostic Significance. **Cells**, 8(6):513.
  27. Wen Z, Tuttle PR, Howlader AH, Vasilyeva A, Gonzalez L, Tangar A, Lei R, Laverde EE, **Liu Y**, Miksovska J, Wnuk SF (2019). Fluorescent 5-Pyrimidine and 8-Purine Nucleosides Modified with an N-Unsubstituted 1,2,3-Triazol-4-yl Moiety. **J Org Chem.** 84(6):3624-3631.
  28. Masi A, Sabbia A, Ferreri C, Manoli F, Lai Y, Laverde E, **Liu Y**, Krokidis MG, Chatgililoglu C, Faraone Mennella MR (2019). Diastereomeric Recognition of 5',8-cyclo-2'-Deoxyadenosine Lesions by Human Poly(ADP-ribose) Polymerase 1 in a Biomimetic Model. **Cells.** 8(2). pii: E116.
  29. Wen Z, Peng J, Tuttle PR, Ren Y, Garcia C, Debnath D, Rishi S, Hanson C, Ward S, Kumar A, Liu Y, Zhao W, Glazer PM, **Liu Y**, Sevilla MD, Adhikary A, Wnuk SF (2018). Electron-Mediated Aminyl and Iminyl Radicals from C5 Azido-Modified Pyrimidine Nucleosides Augment Radiation Damage to Cancer Cells. **Organic Letters.** 20 (23): 7400–7404.
  30. Lai Y, Weizmann Y, **Liu Y\*\*** (2018) The deoxyribose phosphate lyase of DNA polymerase  $\beta$  suppresses a processive DNA synthesis to prevent trinucleotide repeat instability. **Nucleic Acids Res.** 46(17):8940-8952.
  31. Suzol, SH, Howlader, AH, Wen Z, Ren, Y, Laverde EE, Garcia C, **Liu, Y** and Wnuk SF (2018) Pyrimidine nucleosides with a reactive ( $\beta$ -chlorovinyl)sulfone or ( $\beta$ -keto)sulfone group at the C5 position, their reactions with nucleophiles and electrophiles, and their polymerase-catalyzed incorporation into DNA. **ACS Omega**, 2018, 3 (4), pp 4276–4288 doi: 10.1021/acsomega.8b00584
  32. Beaver JM, Lai Y, Rolle SJ, Weng L, Greenberg MM, **Liu, Y\*\*** (2018) An oxidized abasic lesion inhibits base excision repair leading to DNA strand breaks in a trinucleotide repeat tract. **PLoS One** 13(2):e0192148.
  33. Gu S, Lai, Y., Chen, H., **Liu Y\*\***, Zhang Z. (2017) miR-155 mediates arsenic trioxide resistance by activating Nrf2 and suppressing apoptosis in lung cancer cells. **Sci Rep.** 2017; 7(1):12155.
  34. Chen W, Tuladhar A, Rolle S, Lai Y, Del Rey FR, Zavala CE, **Liu Y**, and Rein KS (2017) Brevetoxin-2, is a unique inhibitor of the C-terminal redox center of mammalian thioredoxin reductase-1. **Toxicol Appl Pharmacol** 329: 58–66.
  35. Ren Y, Lai Y, Laverde EE, Lei R, Rein HL and **Liu Y\*\*** (2017) Modulation of trinucleotide repeat instability by DNA polymerase  $\beta$  polymorphic variant R137Q. **PLoS One** 12(5):e0177299. doi: 10.1371/journal.pone.0177299.
  36. Luo Q, Beaver JM, **Liu Y\*\*** and Zhang Z (2017) Dynamics of p53: A master decider of cell fate. **Genes** 8(2). pii: E66. doi: 10.3390/genes8020066.

37. Chen C, Jiang X, Gu S, Lai Y, **Liu Y\*\***, Zhang Z (2017) Protection of Nrf2 against arsenite-induced oxidative damage is regulated by the cyclic guanosine monophosphate-protein kinase G signaling pathway. **Environ Toxicol** 32:2004-2020.
38. Beaver JM, Lai Y, Rolle SJ, **Liu, Y\*\*** (2016) Proliferating cell nuclear antigen prevents trinucleotide repeat expansions by promoting repeat deletion and hairpin removal. **DNA Repair (Amst)** 48: 17-29.
39. Lai Y, Budworth H, Beaver JM, Chan NL, Zhang Z, McMurray CT, **Liu Y\*\*** (2016) Crosstalk between MSH2- MSH3 and pol  $\beta$  promotes trinucleotide repeat expansion during base excision repair. **Nat Commun.** 7:12465. doi: 10.1038/ncomms12465.
40. Lai Y, Jiang Z, Zhou J, Osemota E, and **Liu Y\*\*** (2016) AP endonuclease 1 prevents the extension of a T/G mismatch by DNA polymerase  $\beta$  to prevent mutations in CpGs during base excision repair. **DNA Repair (Amst)** 43: 89-97.
41. Jiang Z, Xu M, Lai Y, Laverde EE, and **Liu Y\*\*** (2015) Bypass of a 5',8-cyclo-2'-deoxypurine by DNA polymerase  $\beta$  during DNA replication and base excision repair leads to nucleotide misinsertions and DNA strand breaks. **DNA Repair (Amst)** 33: 24-34.
42. Beaver JM, Lai Y, Xu M, Casin, AH, Laverde EE, and **Liu Y\*\*** (2015) AP endonuclease 1 prevents trinucleotide repeat expansion via a novel mechanism during DNA base excision repair. **Nucleic Acids Res** 43(12):5948-5960.
43. Chen C, Jiang X, Lai Y, **Liu Y\*\***, Zhang Z (2015) Resveratrol protects against arsenic trioxide-induced oxidative damage through maintenance of glutathione homeostasis and inhibition of apoptotic progression. **Environ Mol Mutagen** 56:333-346.
44. Xu M, Lai Y, Jiang Z, Terzidis MA, Masi A, Chatgililoglu C and **Liu Y\*\*** (2014) A 5', 8-cyclo-2'-deoxypurine lesion induces trinucleotide repeat deletion via a unique lesion bypass by DNA polymerase  $\beta$ . **Nucleic Acids Res** 42(22):13749–13763.
45. Jiang X, Chen C, **Liu Y**, Zhang P and Zhang Z (2014) Critical role of cellular glutathione homeostasis for trivalent inorganic arsenite-induced oxidative damage in human bronchial epithelial cells. **Mut Res-Genetic Tox Environ Mut** 770: 35-45.
46. Wu S, Liang P, Yu H, Xu X, **Liu**, Lou X and Xiao Y (2014) Amplified Single Base-Pair Mismatch Detection via Aggregation of Exonuclease-Sheared Gold Nanoparticles. **Anal Chem** 86(7): 3461-7.
47. Lai, Y., Beaver J.M., Lorente, K., Melo, J., Ramjagsingh, S., Agoulnik, I.U., Zhang, Z. and **Liu, Y. \*\*** (2014) Base excision repair of chemotherapeutically-induced alkylated DNA damage predominantly causes contractions of expanded GAA repeats associated with Friedreich's ataxia. **PLoS One** 9(4): e93464.
48. Xu, M., Lai, Y., Torner, J., Zhang, Y., Zhang, Z., **Liu, Y. \*\*** (2014) Base excision repair of oxidative DNA damage coupled with removal of a CAG repeat hairpin attenuates trinucleotide repeat expansion. **Nucleic Acids Res.** 42(6):3675–3691.
49. Zhao, W., Wu, M., Lai, Y., Deng, W., **Liu, Y. \*\***, and Zhang, Z. (2013) Involvement of DNA polymerase beta overexpression in the malignant transformation induced by benzo[a]pyrene. **Toxicology** 5 (309):73-80.
50. Lai, Y., Xu, M., Zhang, Z. and **Liu, Y.\*\*** (2013) Instability of CTG Repeats Is Governed by the Position of a DNA Base Lesion through Base Excision Repair. **PLoS One** 8(2): e56960.
51. Xu, M., Gabison J and **Liu, Y.\*\*** (2013) Trinucleotide repeat deletion via a unique hairpin bypass by DNA polymerase  $\beta$  and alternate flap cleavage by flap endonuclease 1. **Nucleic Acids Res** 41(3):1684-1697.
52. Luo, Q., Lai, Y., Liu S., Wu, M., **Liu, Y.\*\*** and Zhang, Z. (2012) Deregulated expression of DNA polymerase  $\beta$  is involved in the progression of genomic instability. **Environ Mol Mutagen** 53: 325-333.
53. **Liu, Y.\*\*** and Wilson, S.H. (2012) DNA base excision repair: a mechanism of trinucleotide repeat expansion. **Trends Biochem Sci** 37 (4): 162-172.
54. Naidu, M.D., Agarwal R., Pena, L. A., Cunha, L., Mezei, M., Shen M., Wilson III, D.M. **Liu, Y.**, Sanchez, Z., Wilson, S.H. and Waring, M.J. (2011) Lucanthone and its derivative Hycanthone inhibit Apurinic Endonuclease-1 (APE1) by direct protein binding **PLoS One** 6 (9):e23679.

55. Prasad, R. Beard, W.A., Batra, V., **Liu, Y.** and Wilson, S.H. (2011) A Review of recent experiments on step-to-step “hand-off” of the DNA intermediates in mammalian base excision repair pathways. **Mol. Biol (Mosk)**. 45(4):586-600.
56. Wilson, S.H., Beard, W.A., Shock, D. D., Batra, V.K., Cavanaugh, N. A., Prasad, R., Hou, E. W., **Liu, Y.**, Asagoshi, K., Horton, J.K., Stefanick, D. F., Kedar, P.S., Carrozza, M. J., Masaka, A., Heacock, M.L. (2010) Base excision repair and design of small molecule inhibitors of human polymerase  $\beta$ . **Cell Mol Life Sci** 67: 3633-3647.
57. Khodyerva, S.N., Prasad, R., Ilina, E.S., Sukhanova, M.V.m Kutuzov, M.M., **Liu, Y.**, Hou, E.W., Wilson, S.H., Lavrik, O.I. (2010) Apurinic/aprimidinic (AP) site recognition by the 5'-dRP/AP lyase in poly(ADP-ribose) polymerase-1 (PARP-1). **Proc Natl Acad Sci USA** 107(51): 22090-5.
58. Asagoshi, K., **Liu, Y.**, Masaoka, A., Lan, L., Prasad, R., Horton, J.K., Brown, A.R., Wang, XH., Bdour, H.M., Sobol, R.W., Taylor, J., Yasui, A. and Wilson, S.H. (2010) DNA polymerase  $\beta$ -dependent long patch base excision repair of UV-induced pyrimidine photoproducts in nucleotide excision repair-deficient cells. **DNA repair (Amst)** 9 (2): 109-119.
59. **Liu, Y.**, Prasad, R. Wilson, S.H. (2010) HMGB1: roles in base excision repair and related function. **Biochim Biophysica Acta-Gene Regulatory Mechanisms**-2010 Jan-Feb Special Edition (ed. Michael Bustin), 1799 (1-2): 119-130.
60. **Liu, Y.**, Prasad, R., Beard, W.A., Hou, E.W., Horton, J.K., McMurray, C.T. and Wilson, S.H. (2009) Coordination between polymerase  $\beta$  and FEN1 modulate CAG repeat expansion. **J Biol Chem** 284 (41): 28352-28366.
61. Prasad, R., **Liu, Y.**, Deterding, L.J., Poltorasky, V.P., Kedar, P.S., Horton, J.K., Kanno, S., Asagoshi, K., Hou, E.W., Khodyreva, S.V., Lavrik, O.I., Tomer, K.B., Yasui, A. and Wilson, S.H. (2007) HMGB1 is a cofactor in mammalian base excision repair. **Mol Cell** 27:829-841.
62. Kovtun, I.V., **Liu, Y.**, Bjoras, M., Klungland, A., Wilson, S.H. and McMurray, C.T. (2007) OGG1 initiates age-dependent CAG trinucleotide expansion in somatic cells. **Nature**, 447 (24):447-452.
63. **Liu, Y.**, Prasad, R., Beard, W.A., Kedar, P.S., Hou, E.W., Shock, D.D. and Wilson, S.H. (2007) Coordination of steps in single-nucleotide base excision repair mediated by apurinic/aprimidinic endonuclease 1 and DNA polymerase  $\beta$ . **J Biol Chem** 282 (18):13532-13541.
64. **Liu, Y.**, Beard, W.A., Shock, D.D., Prasad, R., Hou, E.H. and Wilson, S.H. (2005) DNA polymerase  $\beta$  and flap endonuclease 1 enzymatic specificities sustain DNA synthesis for long-patch base excision repair. **J Biol Chem** 280 (5):3665-3674.
65. **Liu, Y.**, Kao, H., and Bambara, R.A. (2004) Flap Endonuclease 1: A central component of DNA metabolism. **Annu Rev Biochem** 73:589-615.
66. **Liu, Y.**, Zhang, H., Veeraraghavan, J., Bambara, R.A., and Freudenreich, C.H. (2004) *Saccharomyces cerevisiae* flap endonuclease 1 uses flap equilibration to maintain triplet repeat stability. **Mol Cell Biol** 24 (9):4049-4064.
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### **BOOK CHAPTER**

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### **INVITED SCIENTIFIC ORAL PRESENTATIONS**

- Liu Y** (2025) DNA Base Excision Repair and Somatic Trinucleotide Repeat Instability: From Molecular Mechanisms to Gene Therapy of Neurodegenerative Diseases. 2025 EMGS Annual Meeting September 6-10, 2025, Rochester, New York
- Liu Y** (2025) DNA Base Excision Repair and Somatic Trinucleotide Repeat Instability: From Molecular Mechanisms to Gene Therapy of Neurodegenerative Diseases. ACS Fall 2025, Washington D.C., August 17-21, 2025
- Liu Y** (2025) DNA Repair at the Crossroad of DNA and RNA Integrity and Implications in Cancer. University of Miami Sylvester Comprehensive Cancer Center Tumor Biology Program, Miami, FL, June 24, 2025
- Liu Y** (2025) Base excision repair and somatic trinucleotide repeat instability: From molecular mechanisms to gene therapy of neurodegenerative diseases. The 2025 Biomolecules on Beach-Biomolecular

- Sciences Institutes Research Symposium, Florida International University, Miami, FL, April 24-25, 2025
- Liu Y (2024)** The crosstalk of oxidative DNA and RNA damage in modulating genome stability. 55<sup>th</sup> Annual Meeting of the Environmental Mutagenesis and Genomics Society (EMGS), Palm Spring, Sept 7-11, 2024
- Liu Y (2024)** The crosstalk of DNA and RNA damage in modulating genome stability and human diseases. ACS Chemistry for Life, Florida Section (FAME) Symposium, Tampa, FL, May 31-June 1, 2024
- Liu Y (2024)** The crosstalk of DNA and RNA damage in modulating genome stability and human diseases. Biomolecular Sciences Institute Seminar Series, Biomolecular Sciences Institutes, Florida International University, Miami, FL, Jan 9, 2024
- Liu Y (2023)** Temozolomide induces contractions of GAA repeats via DNA base excision repair attenuate frataxin deficiency in Friedreich's ataxia (Poster presentation), Neuroscience 2023 Annual Conference, Nov 11-16, 2023, Washington D.C.
- Liu Y (2023)** DNA base damage and repair interplays with chromatin structures to modulate trinucleotide repeat Instability FASEB-Catalyst Conference on DNA Damage and Repair in the Brain, Oct 18, 2023, Virtual
- Liu Y (2023)** Oxidative stress-induced DNA and RNA damage repair, genetic, epigenetic, and epitranscriptomic stability in human diseases. DataBlitz for the Undergraduate Research Society at Florida International University, April 4, 2023, Miami, FL
- Liu Y (2023)** DNA polymerase ribonucleotide incorporation disrupts m6A profiles in mRNA modulating DNA repair gene expression, Gordon Research Conference-Mammalian DNA Repair, Feb 5-10, Ventura, CA
- Liu Y (2022)** DNA base damage and repair interplays with chromatin structures to modulate trinucleotide repeat Instability, Department of Environmental Health Sciences, Florida International University, Miami, FL
- Liu Y (2021)** DNA base damage and repair interplays with chromatin structures to modulate trinucleotide repeat Instability, Gordon Research Conference-Mammalian DNA Repair, Ventura, California, June 7-11, 2021
- Liu Y (2020)** DNA base damage repair, a modulator of genome and epigenome instability and diseases, Department of Environmental Health Sciences, Florida International University, Miami, Nov 5, 2020
- Liu Y (2020)** Flap endonuclease 1 cleaves RNA to resolve R-loops through DNA base excision repair, 2020 EMGS Annual Meeting (Virtual), Sept 14, 2020.
- Liu Y (2019)** DNA base damage and repair and genome and epigenome stability, Department of Chemistry, University of Florida, December 13, 2019, Gainesville, Florida
- Liu Y (2019)** DNA base damage and base excision repair and instability of genetics and epigenetics, Department of Cell Biology, Microbiology and Molecular Biology, University of South Florida, November 1, 2019, Tampa, Florida
- Liu Y (2019)** Environmental toxicants and human neurodegenerative diseases, Chengdu Medical College School of Public Health, May 10, 2019, Chengdu, Sichuan, China
- Liu Y (2019)** Environmental toxicants and human neurodegenerative diseases, Chengdu Traditional Chinese Medicine School of Public Health, May 6, 2019, Chengdu, Sichuan, China
- Liu Y (2019)** Environmental toxicants and human neurodegenerative diseases, Sichuan University West China School of Public Health, April 29, 2019, Chengdu, Sichuan, China
- Liu Y (2018)** DNA damage landscape governs trinucleotide repeat instability FASEB SRC Dynamics of DNA Structures in Biology July 8-13, 2018, Olean, NY
- Liu Y (2018)** Base excision repair interplays with chromatin structures to modulate trinucleotide repeat instability, National Institute of Diabetics, Digestive and Kidney Diseases/National Institutes of Health, Bethesda, MD, April 11, 2018.
- Liu Y (2018)** DNA repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Barry University, Miami Shores, FL, March 14, 2018.

- Liu Y** (2017) DNA methylation pattern at BRCA1 gene is disrupted by environmentally-induced oxidative DNA damage via DNA base excision repair, EMGS 48<sup>th</sup> Annual Meeting, Raleigh, NC, September 9-13, 2017.
- Liu Y** (2017) DNA Repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Department of Biochemistry and Molecular Biology, West China School of Basic Biomedical Sciences and Forensic Medicine Sichuan University, Chengdu, Sichuan, China, May 15, 2017.
- Liu Y** (2017) DNA Repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Institute of Environment and Health, Jiangnan University, Wuhan, Hubei, China, May 11, 2017.
- Liu Y** (2017) DNA Repair: A modulator of genome and epigenome instability and its application in disease prevention and treatment. Department of Nutrition, Tongji Medical College School of Public Health, HuaZhong Science and Technology University, Wuhan, Hubei, China, May 9, 2017.
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- Liu Y** (2016) Environmentally-induced Oxidative DNA damage disrupts DNA methylation pattern in human breast cancer 1 (BRCA1) gene via base excision repair. Environmental Mutagenesis and Genomics Society 47<sup>th</sup> Annual Meeting, Kansas City, MO, September 17-24, 2016.
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- Liu Y** (2014) Somatic Trinucleotide repeat instability and treatment of human neurodegenerative diseases, Sichuan University West China School of Public Health, Chengdu, Sichuan, China May 22, 2014.
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- Liu Y** (2013) Trinucleotide repeat instability via DNA base lesion repair. Department of Biochemistry and Biophysics, University of Rochester School of Medicine and Dentistry, August 7, 2013, Rochester, NY.
- Liu Y** (2012) The position of a DNA base lesion governs the stability of trinucleotide repeats through DNA base excision repair. FASEB SRC: Scientific Research Conferences-Dynamic DNA Structures in Biology, June 17-22, 2012.
- Liu Y** (2012) Trinucleotide repeat deletion via a unique hairpin bypass by DNA polymerase  $\beta$  and FEN1. Gordon Research Conference-DNA Damage, Mutation & Cancer, Ventura, CA, March 25-30, 2012.
- Liu, Y.** (2012) DNA base lesion repair and trinucleotide repeat instability. Department of Biochemistry and Molecular Biology, University of Miami School of Medicine, Miami, FL, January, 2012.
- Liu, Y.** (2011) Perspectives on DNA Base Lesion Repair: Cellular and molecular implications in human diseases, Department of Chemistry, Florida Institute of Technology, Melbourne, FL, February, 2011.

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